STATE OF THE WORKFORCE REPORT XV:

CENTRAL SIX ALABAMAWORKS

MADE IN ALABAMA

AIDT

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SUMMARY

This report analyzes workforce supply and demand issues using available metrics of workforce characteristics for the Central Six AlabamaWorks workforce development region and presents some implications and recommendations.

Central Six AlabamaWorks had a 3.1 percent unemployment rate in March 2021, with 16,969 unemployed workers. An underemployment rate of 21.5 percent for 2020/2021 means that the region has a 129,027-strong available labor pool that includes 112,058 underemployed workers who are looking for better jobs and are willing to commute farther and longer for such jobs.

Commute time and distance were down in 2020 from 2019 implying that congestion eased in Central Six AlabamaWorks region. The recent pandemic and the related economic recession most likely led to lighter traffic in 2020. However, as the current pandemic eases and the region's economy recovers, congestion is likely to worsen in the Birmingham-Hoover metro area. To avoid slowing economic development, continuous maintenance and development of transportation infrastructure and systems is strongly needed.

By sector, the top five employers in the region are health care and social assistance, retail trade, accommodation and food services, educational services, and manufacturing. These five industries provided 267,998 jobs, 51.4 percent of the regional total in the first quarter of 2020. Among these leading employers, only manufacturing had a higher monthly wage than the $5,196 regional average. Efforts to diversify and strengthen the region's economy by retaining, expanding, and attracting more high-wage providing industries should continue. Workforce development should also focus on preparing workers for these industries.

On average 19,709 jobs were created per quarter from second quarter 2001 to first quarter 2020 and quarterly net job flows averaged a loss of 83 jobs as the effects of the COVID-19 led recession resulted in drastic and massive job losses. Job creation is the number of new jobs that are created either by new businesses or through expansion of existing firms. Net job flows reflect the difference between current and previous employment at all businesses.

The top five high-demand occupations are Combined Food Preparation and Serving Workers, Including Fast Food; Waiters and Waitresses; Laborers and Freight, Stock, and Material Movers, Hand; Janitors and Cleaners, Except Maids and Housekeeping Cleaners; and Registered Nurses.

The top five fast-growing occupations are Occupational Therapy Assistants; Physician Assistants; Information Security Analysts; Medical Scientists, Except Epidemiologists; and Statisticians.

The top 50 high-earning occupations are mainly in health and management fields and have a minimum mean salary of $101,652 and a high of $270,430. Seven of the top 10 are health occupations, and two are in management.

Of the top 40 high-demand, the top 20 fast-growing, and 50 high-earning occupations, six are both high-demand and high-earning and six are both high-demand and fast-growing. Two occupations are both fast-growing and high-earning. Only one occupation—Nurse Practitioners—is in all three categories.

Of the region's 731 occupations, 150 are expected to decline over the 2018 to 2028 period. Twenty occupations are expected to sharply decline by at least three percent. Education and training for these 20 occupations should slow accordingly.

Skill and education requirements for jobs keep rising. Educational and training requirements of high-demand, fast-growing, and high-earning occupations demonstrate the importance of education in developing the future workforce. In the future, more jobs will require postsecondary education and training at a minimum.

The importance of basic skills generally and for high-demand, high-growth, and high-earning jobs indicates a strong need for training in these skills. For Central Six AlabamaWorks the pace of training needs to increase for technical, basic (science), systems, and resource management skills, while the scale of training should be raised for basic and social skills. Ideally, all high school graduates should possess basic skills so that postsecondary and higher education can focus on other and more complex skills. Employers should be an integral part of planning for training as they can help identify future skill needs and any existing gaps.

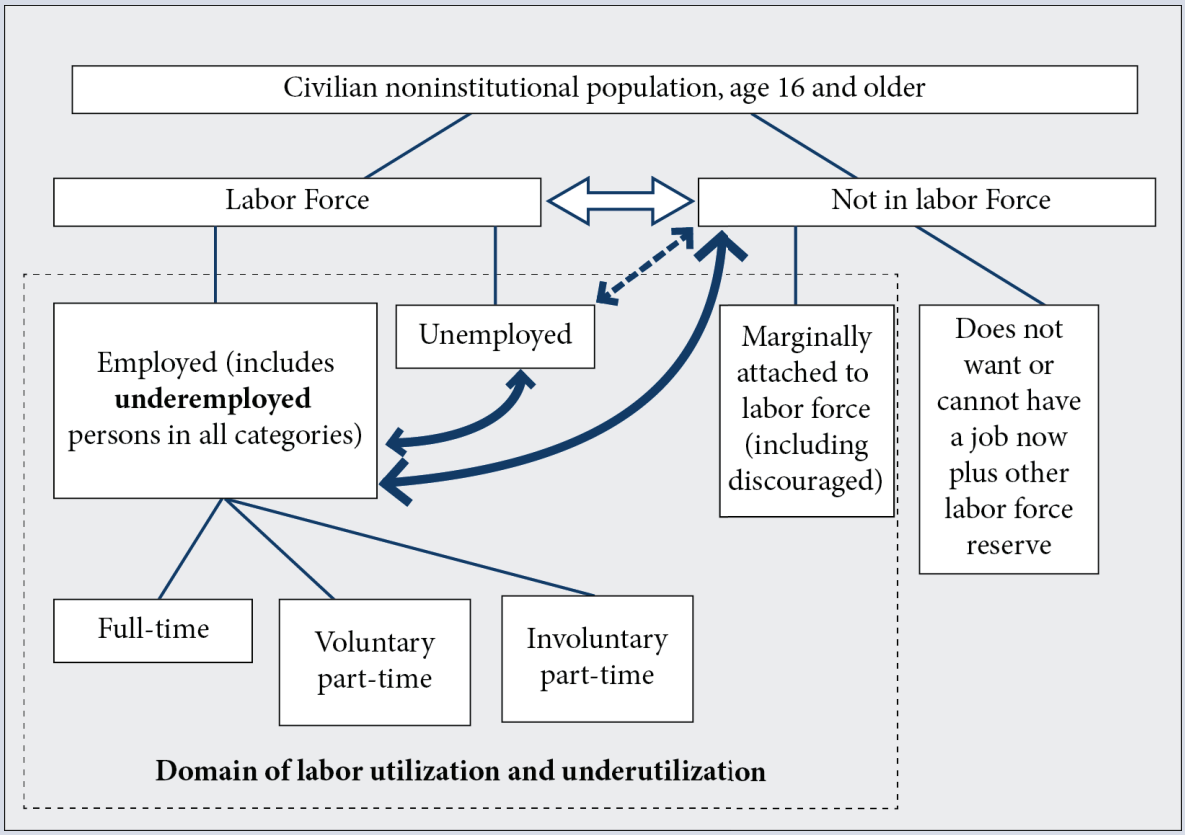
From a 2018 base, worker shortfalls of about 43,700 and 56,000 are estimated for 2028 and 2030, respectively. By 2040, the worker shortfall will reach about 81,300. This will demand a focus on worker shortfalls and skills through 2040. Worker shortfalls for critical occupations will need to be addressed continuously. Strategies to address skill needs and worker shortfalls might include: (i) improvements in education and its funding; (ii) use of economic opportunities that attract new and younger residents; (iii) focus on hard-to-serve populations (e.g. out-of-school youth); (iv) lowering the high school dropout rate; (v) continuation and enhancement of programs to assess, retrain, and place dislocated workers; (vi) facilitation of in-commuting; and encouraging older worker participation.

Improving education is important because (i) a highly educated and productive workforce is a critical economic development asset, (ii) productivity rises with education, (iii) educated people are more likely to work, and (iv) it yields high private and social rates of return on investment. Workforce development must view all of education and other programs (e.g. adult education, career technical training, worker retraining, career readiness, etc.) as one system. Funding to support workforce development may require tax reform at state and local levels and should provide for flexibility as workforce needs change over time and demand different priorities. Publicizing both private and public returns to education can encourage individuals to raise their own educational attainment levels, while also promoting public and legislative support for education.

Higher incomes that come with improved educational attainment and work skills will help to increase personal income for the region as well as raise additional local (county and city) tax revenues. This is important for a region that has a below average population and labor force growth.

Workforce development and economic development can together build a strong and well-diversified Central Six AlabamaWorks regional economy. Indeed, one cannot achieve success without the other.

LABOR UTILIZATION AND SUPPLY FLOWS



Source: Addy et al[1] and Canon et al[2]

The chart above presents labor utilization and supply flows that explain labor market dynamics in view of recent study findings. The civilian non-institutional population age 16 and above is comprised of participants in the labor force and nonparticipants. The labor force is made of employed and unemployed persons; the unemployed do not have a job but are actively searching for work. Employed persons include fully employed and underemployed persons in all categories of work (full-time, voluntary part-time, and involuntary part-time). Nonparticipants in the labor force include retirees (voluntary and involuntary), people who do not want to or cannot work for various reasons (e.g., disability, caring for family members, in school or training, etc.), discouraged workers, and other labor force reserves. It has been suggested that a subgroup of nonparticipants referred to as the "waiting group" is more likely than the rest of the nonparticipants to take a job if wages and conditions are satisfactory, but they do not actively search for work. It has been shown that between January 2003 and August 2013, the flow of nonparticipants into employment was 1.6 times that of unemployed persons transitioning into employment, which may be due to the presence of the waiting group[1,2]. Nonparticipant flows to employment are larger in services, management, and professional occupations while unemployed flows to employment are higher in physically intensive occupations such as construction workers and miners. Industry effects should vary by the type and number of occupations they contain. This finding enhances the common understanding of labor market dynamics and influences workforce availability and skills gap analyses. Skill and spatial mismatches present additional complications to labor market dynamics. For example, unemployment can coexist with significant job availability.

[1]Addy, S.N., Bonnal, M., and Lira, C. (2012). Towards a More Comprehensive Measure of Labor Underutilization: The Alabama Case, *Business Economics,* vol. 47(3) .
[2]Canon, M.E., Kudlyak, M., and Reed, M. (2014). Not Everyone Who Joins the Ranks of the Employed was "Unemployed", *The Regional Economist*, January.

WORKFORCE SUPPLY

Labor Force Activity

The labor force includes all persons in the civilian noninstitutional population who are age 16 and over and who have a job or are actively looking for one. Typically, those who have no job and are not looking for one are not included (e.g. students, retirees, discouraged workers, and the disabled). Table 4.1 shows labor force information for Central Six AlabamaWorks and its six counties for 2020 and March 2021. Alabama labor force information is available from the Labor Market Information (LMI) Division of the Alabama Department of Labor. LMI compiles data in cooperation with the U.S. Bureau of Labor Statistics. Central Six AlabamaWorks consists of Blount, Chilton, Jefferson, St. Clair, Shelby, and Walker counties.

Regional and unemployment rates sharply rose due to major job losses from the 2007 economic recession, but gradually declined to record low levels in 2019 as the region experienced a slow but long economic recovery. This downward trend was disrupted in 2020 by COVID-19 pandemic and the associated economic recession, which led to massive job losses and raised monthly unemployment rates to very high levels. As personal protection equipment and testing became more available and Congress provided much needed economic relief through the CARES Act, businesses and employers resumed operations albeit at a staggered pace. This effectively lowered unemployment rates and annual county unemployment rates ranged

Table 4.1 Central Six AlabamaWorks Labor Force Information

	2020 Annual Average			
	Labor Force	Employed	Unemployed	Rate (%)
Blount	24,661	23,653	1,008	4.1
Chilton	19,592	18,618	974	5.0
Jefferson	315,957	296,282	19,675	6.2
St. Clair	40,132	38,146	1,986	4.9
Shelby	114,048	109,646	4,402	3.9
Walker	24,877	23,431	1,446	5.8
Central Six	539,267	509,776	29,491	5.5
Alabama	2,230,118	2,099,062	131,056	5.9
U.S.	160,742,000	147,795,000	12,947,000	8.1

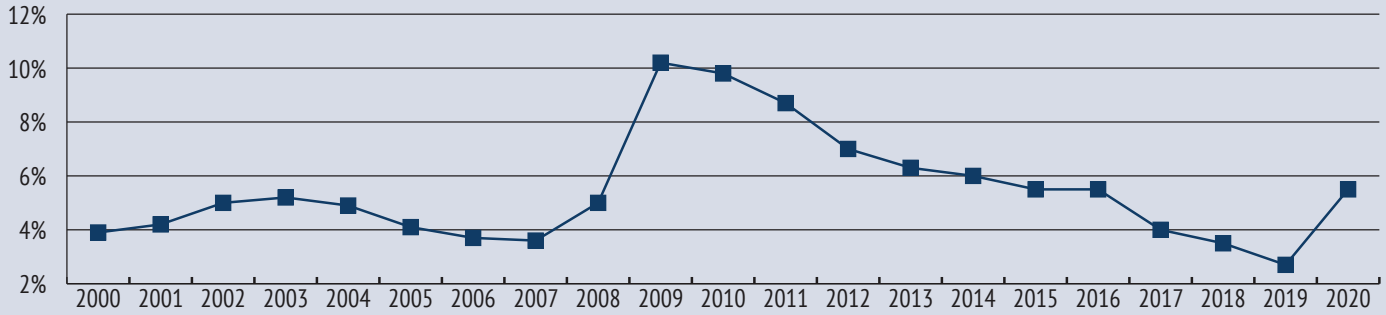
	March 2021			
	Labor Force	Employed	Unemployed	Rate (%)
Blount	24,650	24,058	592	2.4
Chilton	19,447	18,899	548	2.8
Jefferson	314,987	303,631	11,356	3.6
St. Clair	40,102	39,029	1,073	2.7
Shelby	114,805	112,348	2,457	2.1
Walker	24,905	23,962	943	3.8
Central Six	538,896	521,927	16,969	3.1
Alabama	2,213,954	2,138,166	75,788	3.4
U.S.	160,397,000	150,493,000	9,905,000	6.2

Note: Not seasonally adjusted.
Source: Alabama Department of Labor and U.S. Bureau of Labor Statistics.

between 3.9 percent in Shelby County to 6.2 percent Jefferson for 2020 (5.5 percent for the region). The regional unemployment rate was below the statewide rate of 5.9 percent. All the counties in Central Six AlabamaWorks had unemployment rates that were below Alabama's rate, except for Jefferson County. Thereafter, a strong economic recovery followed in the region fueled by the availability of COVID-19 vaccines and more economic relief through the Consolidated Appropriations Act of 2021 and the American Rescue Plan Act of 2021. Unemployment rates further declined and by March 2021, regional county unemployment rates ranged from 2.1 percent in Shelby County to 3.8 percent in Walker, with 3.1 percent for the region. The regional unemployment rate was below Alabama's 3.4 percent in March 2021. Two counties—Jefferson and Walker had higher unemployment that Alabama.

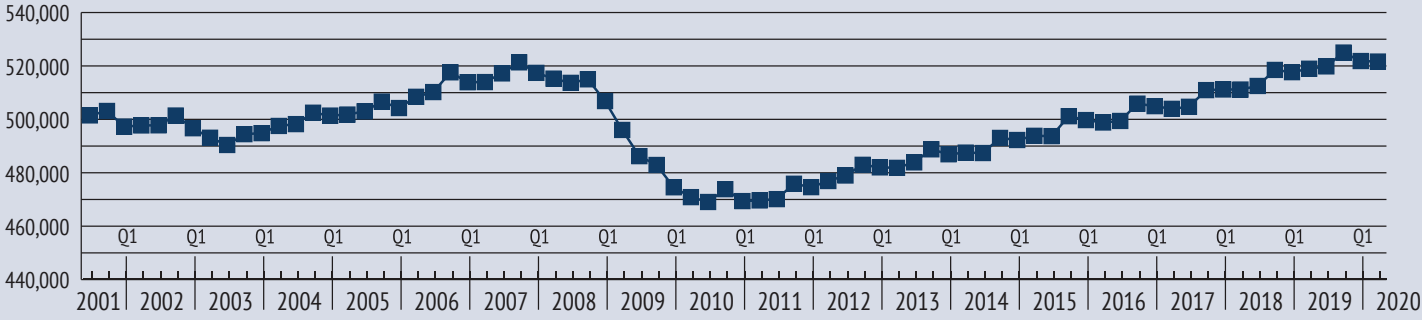
Annual unemployment rates for 2000 to 2020 are shown in Figure 4.1. After rising to 5.2 percent in 2003, unemployment fell to a record low of 3.6 percent in 2007 because of job gains arising from successes in regional

Figure 4.1 Central Six Unemployment Rate



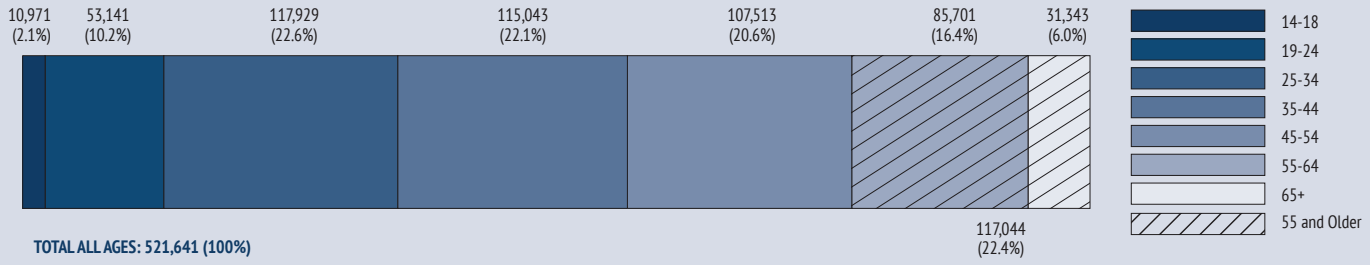
Source: Alabama Department of Labor.

Figure 4.2 Central Six Nonagricultural Employment



Source: Alabama Department of Labor and U.S. Census Bureau.

Figure 4.3 Nonagricultural Employment - Workers by Age Group (First Quarter 2020)



Source: U.S. Census Bureau, Local Employment Dynamics Program.
Note: Rounding errors may be present. Nonagricultural employment is by place of work, not residence.

and state economic development. Unemployment rose to a record high of 10.2 percent in 2009 due to the 2007 recession, but slowly declined to a record low of 2.7 percent in 2019 as the longest economic expansion persisted. In 2020, the region's unemployment rose to 5.5 percent due to massive job losses caused by the COVID-19 pandemic led recession. The unemployment rate has been falling at a slow pace as COVID-19 persistence and supply chain backlogs and interruptions continue to limit business operations and labor supply. Year-to-date monthly labor force data indicate a significantly lower regional unemployment rate for 2021 than seen in 2020, but the impact of COVID-19 and its ongoing challenges are likely to keep delaying full economic recovery and the unemployment rate might stay above the pre-recession level until 2022.

Quarterly nonagricultural employment of the region's residents averaged 498,496 from the second quarter of 2001 to the first quarter of 2020 (Figure 4.2). The number of jobs declined from the third quarter of 2007 through the fourth quarter of 2011 due to the 2007 recession but has been trending up. The total employment rose to over 525,000 in the third quarter of 2019, the highest in the entire period, but slightly dropped the subsequent quarters. By the first quarter of 2020, the total nonagricultural employment was 521,640 jobs.

Figure 4.3 shows worker distribution by age in Central Six AlabamaWorks for the first quarter of 2020. Older workers, age 55 and over, comprise 22.4 percent of the region's nonagricultural employment, below Alabama's 22.8 percent. Workers who are age 65 and over constitute 6.0 percent of nonagricultural employment, just below the state's 6.2 percent. To meet long term occupational projections for growth and replacement, labor force participation of younger residents must increase or older workers may have to work longer.

Commuting Patterns

In 2005, about 27,000 more people commuted into the region for work than residents who commuted out (Table 4.2). Net in-commuting jumped up to over 30,000 in 2007 before dropping due to the last economic recession. By 2010, net in-commuting declined to 25,842, but it rose again to 36,331 in 2013 before dropping to 31,601 in 2016. The regional net-in-commuting was 33,999 in 2018. Since 2005, commuter outflow rose by 35.2 percent from 60,560 to 81,861 as inflow went up 32.4 percent from 87,521 to 115,860 in 2018. There is a considerable commuting within the region, which when combined with the strong increase in the number of in- and out-commuters point to rising congestion, especially in Jefferson and Shelby counties. Of the 115,860 workers who commuted into Central Six AlabamaWorks for work in 2018 (latest available data), about 33,300 lived in North; 21,000 in East; 19,300 in Central; 18,500 in West; 9,800 in Southwest; and 4,900 in Southeast AlabamaWorks regions. The leading destinations for Central Six residents out-commuting from the region were North (23,200), Central (14,300), East (14,000), West (12,300), and Southwest (5,700).

Table 4.2 also shows the one-way average commute time and distance for workers in the past four years. Commute times and distances were down in 2020 from the previous year implying that congestion eased in the region. The ongoing COVID-19 pandemic and the associated economic recession as well as work from home accommodations by some employers have likely lowered commuting times and distances. However, as the pandemic eases and the economy recovers congestion will continue to be an issue in the Birmingham-Hoover metro area. To ensure a smooth and fast flow of goods and movement of workers, regional transportation infrastructure and systems must be maintained and developed properly. Impeding the mobility of workers and goods could delay or slow economic development. Projects such as the anticipated Northern Beltline and the recent reconstruction of the I-59/I-20 Interchange in Birmingham-Hoover metro area will improve commuting.

Table 4.2 Central Six AlabamaWorks Commuting Patterns

Year	Inflow	Outflow
2005	87,521	60,560
2006	81,542	70,479
2007	98,535	68,206
2008	100,258	73,520
2009	98,672	72,248
2010	98,733	72,891
2011	101,109	73,020
2012	105,119	69,807
2013	108,479	72,148
2014	108,107	76,265
2015	106,089	73,502
2016	108,345	76,744
2017	112,658	80,763
2018	115,860	81,861

Central Six ALWorks Counties	Inflow, 2018		Outflow, 2018	
	Number	Percent	Number	Percent
Blount	4,018	1.7	18,191	8.9
Chilton	4,287	1.8	11,852	5.8
Jefferson	155,028	64.8	71,318	34.8
St. Clair	11,991	5.0	28,572	13.9
Shelby	56,102	23.5	59,607	29.1
Walker	7,659	3.2	15,546	7.6

	Percent of Workers					
Average commute time (one-way)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Less than 20 minutes	42.0	46.7	37.5	42.0	41.6	40.0
20 to 40 minutes	31.2	25.2	35.2	29.9	32.1	29.9
40 minutes to an hour	14.8	12.6	13.8	15.3	11.6	12.2
More than an hour	3.9	3.9	4.3	2.8	4.8	3.9
Average commute distance (one-way)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Less than 10 miles	35.0	42.2	32.5	31.8	35.1	36.6
10 to 25 miles	33.5	29.7	35.3	38.2	38.6	37.4
25 to 45 miles	21.3	18.5	19.5	20.5	15.2	15.8
More than 45 miles	7.0	6.8	9.1	5.7	8.6	8.1

Note: Rounding errors may be present.
Source: U.S. Census Bureau; Alabama Department of Labor; and Center for Business and Economic Research, The University of Alabama.

Population

Central Six AlabamaWorks population was 1,105,132 in 2010, which is 7.1 percent more than in 2000. This growth rate was lower than Alabama's 7.5 percent (Table 4.3). The population grew in four of Central Six AlabamaWorks counties and shrank in two. Shelby County had the fastest and highest population growth followed by St. Clair. Population decline was highest in Walker County followed by Jefferson. The 2020 Census results show a 4.8 percent population growth for Central Six AlabamaWorks region from 2010, which is lower than Alabama's rate of 5.1 percent. The highest population growth continues to occur in Shelby County, followed by St. Clair. Only Walker County had negative population growth during that time. Table 4.4 shows population decennial counts, estimates, and projections by age group up to 2040. The population aged 65 and over is expected to grow rapidly, as the generation of baby boomers turns 65. Consequently, growth of the prime working age group (20-64) and youth (0-19) will lag that of the total population and pose a challenge for workforce development. If employment growth outpaces labor force growth as is expected in the medium and long term, communities that experience rapid job gains may need to consider investments in amenities and infrastructure to attract new residents.

Table 4.3 Central Six AlabamaWorks Population

County	1990 Census	2000 Census	2010 Census	2020 Census	Change 2000-2010 Number	Change 2000-2010 Percent	Change 2010-2020 Number	Change 2010-2020 Percent
Blount	39,248	51,024	57,322	59,134	6,298	12.3	1,812	3.2
Chilton	32,458	39,593	43,643	45,014	4,050	10.2	1,371	3.1
Jefferson	651,525	662,047	658,466	674,721	-3,581	-0.5	16,255	2.5
St. Clair	50,009	64,742	83,593	91,103	18,851	29.1	7,510	9.0
Shelby	99,358	143,293	195,085	223,024	51,792	36.1	27,939	14.3
Walker	67,670	70,713	67,023	65,342	-3,690	-5.2	-1,681	-2.5
Central Six Total	940,268	1,031,412	1,105,132	1,158,338	73,720	7.1	53,206	4.8
Alabama	4,040,587	4,447,100	4,779,736	5,024,279	332,636	7.5	244,543	5.1
United States	248,709,873	281,421,906	308,745,538	331,449,281	27,323,632	9.7	22,703,743	7.4

Source: Center for Business and Economic Research, The University of Alabama and U.S. Census Bureau.

Table 4.4 Population by Age Group and Projections

Age Group	2000	2010	2018	2028	2030	2035	2040
0-19	285,101	293,498	290,979	301,689	302,420	305,901	311,524
20-24	67,379	71,049	69,349	74,066	74,467	76,751	78,333
25-29	73,522	76,949	80,801	75,571	76,225	77,607	80,129
30-34	73,176	75,066	75,534	76,878	77,226	79,312	80,767
35-39	80,891	74,520	75,457	76,443	76,998	78,476	80,904
40-44	83,261	73,249	71,072	77,189	75,804	77,812	79,711
45-49	77,310	80,239	75,155	77,218	79,237	76,051	78,462
50-54	66,977	81,277	73,099	73,403	73,895	79,347	76,361
55-59	50,494	73,963	78,101	70,799	71,544	73,329	79,027
60-64	41,151	62,089	73,806	70,087	67,775	70,199	72,289
65+	132,150	143,233	184,343	231,735	241,173	253,347	263,548
20-64 Total	**614,161**	**668,401**	**672,374**	**671,654**	**673,171**	**688,884**	**705,983**
Total Population	**1,031,412**	**1,105,132**	**1,147,697**	**1,205,079**	**1,216,764**	**1,248,133**	**1,281,055**
Change from 2018							
0-19				3.7%	3.9%	5.1%	7.1%
20-64				-0.1%	0.1%	2.5%	5.0%
Total Population				5.0%	6.0%	8.8%	11.6%

Source: Center for Business and Economic Research, The University of Alabama and U.S. Census Bureau.

Educational Attainment

Educational attainment of Central Six AlabamaWorks residents who were 25 years old and over in 2015 to 2019 is shown in Table 4.5 and Figure 4.6. In this period, 88.8 percent of the region's residents graduated from high school and 30.7 percent held a bachelor's or higher degree. This is higher than Alabama's 86.2 percent of residents with high school diplomas or higher and 25.5 percent for those with bachelor's degree or higher. Shelby County has the highest educational attainment followed by Jefferson. Indeed, the two counties had very higher educational attainment compared to Alabama. Walker County had the lowest educational attainment for bachelor's degree or higher and Blount had the lowest for high school diploma or higher. Educational attainment is important as skills rise with education and high-wage jobs demand more skill sets.

Underemployment and Available Labor

Labor force data are often limited to information on the employed and the unemployed that is available from government sources. However, this information is not complete from the perspective of employers. New or expanding employers are also interested in underemployment because current workers are potential employees. In fact, experience requirements in job ads are evidence that many prospective employers look beyond the unemployed for workers.

Workers in occupations that underutilize their experience, training, and skills are underemployed. These workers might look for other work because their current wages are below what they believe they can earn or because they wish to not be underemployed. Underemployment occurs for various reasons including productivity growth, spousal employment and income, and family constraints or personal preferences. Underemployment is unique to areas because of the various contributing factors combined with each area's economic, social, and geographic characteristics.

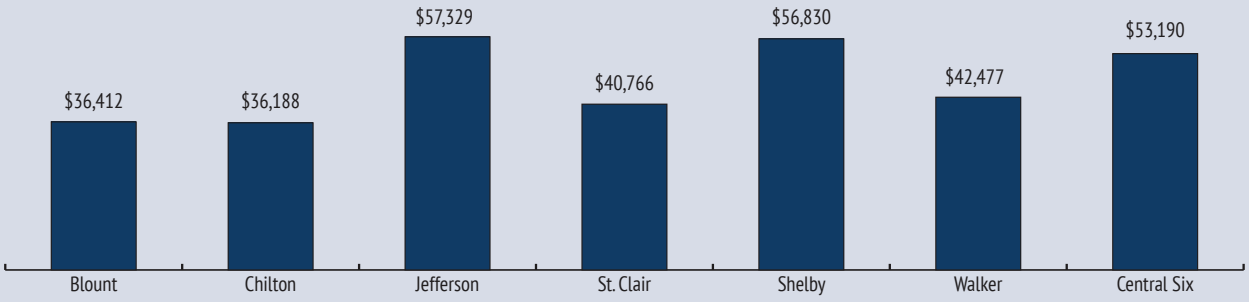
Per Capita Income

Per capita income (PCI) for Central Six AlabamaWorks was $53,190 in 2019 (Figure 4.4), up 48.6 percent from 2005, and $9,045 (or 20.5 percent) more than the state average of $44,145. Figure 4.5 presents the 2019 PCI by county for the region. Jefferson County had the highest PCI at $57,329, followed by Shelby with $56,830 and Walker at $42,477. Chilton County's PCI was the lowest at $36,188 followed by Blount with $36,412. Both Jefferson and Shelby counties had higher PCI than the state average.

Figure 4.4 Central Six AlabamaWorks Per Capita Income

Source: U.S. Bureau of Economic Analysis and Center for Business and Economic Research, The University of Alabama.

Figure 4.5 Per Capita Income, 2019



Source: U.S. Bureau of Economic Analysis and Center for Business and Economic Research, The University of Alabama.

The existence of underemployment identifies economic potential that is not being realized. It is extremely difficult to measure this economic potential because of uncertainties regarding additional income that the underemployed can bring to an area. It is clear, however, that underemployment provides opportunities for selective job creation and economic growth. A business that needs skills prevalent among the underemployed could locate in places that have such workers regardless of those areas' unemployment rates. A low unemployment rate, which may falsely suggest limited labor availability, is therefore not a hindrance to the business.

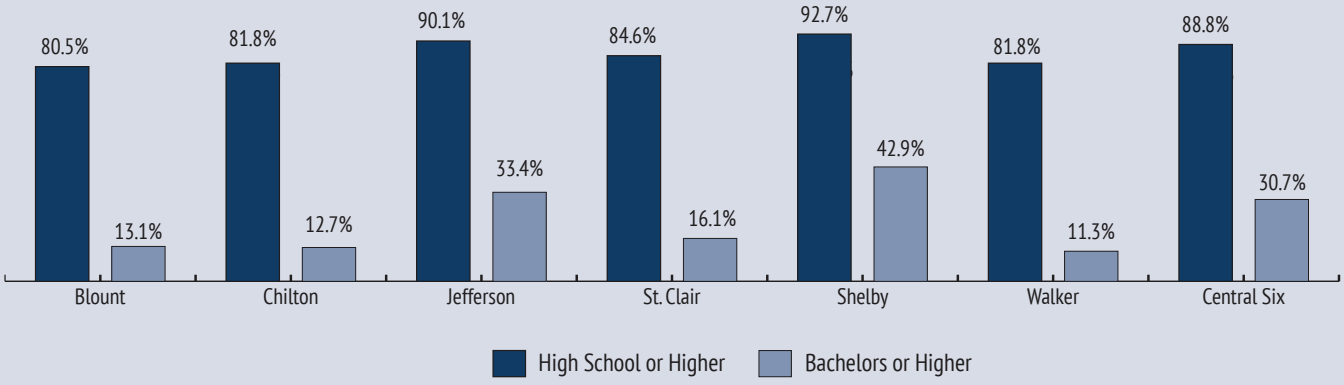
The underemployed present a significant labor pool because they tend to respond to job opportunities that they believe are better for reasons that include (i) higher income, (ii) more benefits, (iii) superior terms and conditions of employment, and (iv) a better match with skills, training, and experience. The underemployed also create opportunities for entry level workers as they leave lower-paying jobs for better-paying ones. Even if their previously held positions are lost or not filled (perhaps due to low unemployment or adverse economic conditions), there is economic growth in gaining higher-paying jobs. Such income growth boosts consumption, savings, and tax collections. Quantifying the size of the underemployed is a necessary first step in considering this group for economic development, workforce training, planning, and other purposes. It is important to note that the underemployed can take on more

Table 4.5 Educational Attainment of Population 25 Years and Over, 2015-2019

	Blount	Chilton	Jefferson	St. Clair	Shelby	Walker	Central Six
Total	39,791	30,046	449,743	61,424	145,427	44,782	771,213
No schooling completed	791	757	3,681	761	826	747	7,563
Nursery to 4th grade	328	128	1,206	150	269	246	2,327
5th and 6th grade	1,247	253	2,919	413	826	484	6,142
7th and 8th grade	1,026	597	4,877	1,845	1,549	1,516	11,410
9th grade	800	920	5,470	1,381	1,486	1,161	11,218
10th grade	1,434	924	8,036	1,887	1,927	1,688	15,896
11th grade	1,298	1,050	10,332	1,845	1,960	1,712	18,197
12th grade, no diploma	839	845	8,163	1,206	1,815	587	13,455
High school graduate/equivalent	13,299	13,348	118,636	21,849	28,835	16,796	212,763
Some college, less than 1 year	3,092	1,539	24,762	4,542	9,469	3,978	47,382
Some college, 1+ years, no degree	5,441	3,499	72,980	9,679	22,739	6,119	120,457
Associate degree	4,986	2,363	38,557	5,986	11,295	4,668	67,855
Bachelor's degree	3,432	2,440	91,545	6,512	41,301	3,293	148,523
Master's degree	1,393	1,056	36,620	2,666	15,372	1,266	58,373
Professional school degree	266	237	13,998	410	3,410	375	18,696
Doctorate degree	119	90	7,961	292	2,348	146	10,956

Source: Center for Business and Economic Research, The University of Alabama and U.S. Census Bureau, American Community Survey.

Figure 4.6 Educational Attainment, 2015-2019



Source: Center for Business and Economic Research, The University of Alabama and U.S. Census Bureau, American Community Survey.

responsibilities and earn more income, but they cannot be counted on to address possible future worker shortages as they are already employed.

Central Six AlabamaWorks had an underemployment rate of 21.5 percent in 2020/2021. Applying this rate to March 2021 labor force data means that 112,058 employed residents were underemployed (Table 4.6). Adding these underemployed workers to the unemployed residents gives a total available labor pool of 129,027 for the region. This is 7.6 times the number of unemployed persons and is a more realistic measure of the available labor pool in the region. Prospective employers must be able to offer

the underemployed higher wages, better benefits or terms of employment, or some other incentives to induce them to change jobs. Regional county underemployment rates ranged from 16.9 percent for Shelby County to 28.6 percent for Walker. Jefferson County also had the largest available labor pool, while Chilton had the smallest. The underemployed workers are willing to commute farther and longer for a better job compared to all workers. For the one-way commute, 44.1 percent of the underemployed workers are prepared to travel for 20 or more minutes longer and 31.6 percent will go 20 or more extra miles for a better job. In contrast, 36.3 percent of all workers are willing to commute for 20 or more minutes longer and 27.6 percent are prepared to travel 20 or more extra miles for the same.

Underemployment rates for counties, AlabamaWorks regions, and the state were determined from an extensive survey on the state's workforce. In the 2020/2021 survey cycle, 1,294 complete responses were obtained from Central Six AlabamaWorks. About 56 percent (722 respondents) were employed, of whom 155 stated that they were underemployed. The primary reasons given for being underemployed in order of popularity are low wages at available jobs; a lack of job opportunities in their area; other family or personal obligations; living too far from jobs; childcare responsibilities; their spouse having a really good job; and caring for someone other than a child. Ongoing economic development efforts can help address some of these factors. However, some of these barriers are underscored the workers challenges related to the COVID-19 pandemic. Nonworkers cited retirement and disability or other health concerns as the main reasons for their status, but a significant number also cited social security limitations as an additional factor. Such workers may join the labor force if their problems can be addressed. Indeed, a 2014 employment reentry study found that the flow of labor force nonparticipants to employment status was 60.0 percent more than that of unemployed workers who gain employment.[3] This implies that the region's available labor pool could be larger than estimated in this report.

A comparison of underemployed workers to the overall workforce in Central Six AlabamaWorks region shows that:

- Fewer work full-time and more of the part-timers would like to work full-time.
- More underemployed workers hold multiple jobs.
- They have shorter commute times and distances.
- More work in computer and mathematical; life, physical, and social services; arts, design, entertainment, sport and media; healthcare practitioners and technical; food preparation and serving related; personal care and service; sales and related; and production occupations.
- By industry, more are in construction; retail trade; transportation and warehousing; arts, entertainment, and recreation; accommodation and food services; and other services.
- They earn less and have shorter job tenure.
- More were furloughed or laid-off from their jobs within

Table 4.6 Underemployed and Available Labor by County

	Central Six	Blount	Chilton	Jefferson	St. Clair	Shelby	Walker
Labor force	538,896	24,650	19,447	314,987	40,102	114,805	24,905
Employed	521,927	24,058	18,899	303,631	39,029	112,348	23,962
Underemployment rate	21.5%	25.0%	19.1%	20.9%	20.2%	16.9%	28.6%
Underemployed workers	112,058	6,015	3,613	63,337	7,876	18,964	6,846
Unemployed	16,969	592	548	11,356	1,073	2,457	943
Available labor pool	**129,027**	**6,607**	**4,161**	**74,693**	**8,949**	**21,421**	**7,789**

Note: Rounding errors may be present. Based on March 2021 labor force data and 2020/2021 underemployment rates.
Source: Center for Business and Economic Research, The University of Alabama and Alabama Department of Labor.

[3] Canon, M.E., Kudlyak, M., and Reed, M. (2014). Not Everyone Who Joins the Ranks of the Employed was "Unemployed", *The Regional Economist*, January.

the quarter and fewer have been recalled to work.

- Fewer believe their jobs fit well with their education and training, skills, and experience.
- More believe they are qualified for a better job based on their education and training.
- More are willing to leave their current jobs for higher income if the offer pays up to 5 percent more or at least 30 percent more.
- For a better job, more are willing to commute farther and longer times.
- Fewer are satisfied with their current jobs.
- More are willing to train for a better job even if they have to pay the full cost.
- More have sought better jobs in the preceding quarter.
- Their median age is 51 years, a year older than that of all employed workers.
- More are married and more are women.
- Their educational level is lower than that of all employees.
- More are African Americans or other nonwhite racial groups and fewer are Hispanics.

Table 4.7 shows the detailed survey results on job satisfaction and willingness to train. Responses for overall job satisfaction as well as various aspects of the job were obtained. In general, most of the region's workers (79.2 percent) are satisfied or completely satisfied with their jobs. Workers are most satisfied with the work they do and least satisfied with the earnings they receive. Fewer underemployed workers are satisfied with their jobs (65.2 percent). The underemployed are also most satisfied with the work they do and least satisfied with their earnings.

Workers are generally willing to train for a new or better job, with the underemployed being much more willing (67.6 percent vs. 57.0 percent). The willingness to train is strongly influenced by who pays for the cost of training. Workers typically do not wish to pay for the training and so their willingness is highest when the cost is fully borne by the government and lowest when the trainee must pay the full costs. The underemployed are more willing to train for a new or better job in all the cost burden scenarios considered. The results strongly show that workers want the government to bear at least a part of the training cost. This expectation may result from worker awareness of government workforce programs that provide such assistance.

Table 4.7 Job Satisfaction and Willingness to Train (Percent)

Job Satisfaction					
	Completely Dissatisfied	Dissatisfied	Neutral	Satisfied	Completely Satisfied
Employed					
Overall	2.4	3.9	13.7	28.1	51.1
Earnings	5.5	8.2	22.2	28.3	35.5
Retention	2.1	2.9	10.0	18.1	65.5
Work	1.0	1.5	9.0	24.9	63.4
Hours	2.6	3.1	10.9	23.3	59.7
Shift	2.4	3.1	6.8	17.0	70.5
Conditions	2.2	3.3	9.3	26.6	58.3
Commuting Distance	3.5	6.1	11.8	17.3	60.9
Underemployed					
Overall	5.8	7.7	20.7	32.3	32.9
Earnings	14.2	17.4	29.7	20.0	18.1
Retention	3.9	4.5	16.1	16.1	55.5
Work	2.6	1.9	12.3	25.8	57.4
Hours	4.5	5.8	14.2	20.0	54.8
Shift	3.9	7.7	9.0	14.2	65.2
Conditions	7.1	5.8	12.3	24.5	49.7
Commuting Distance	3.2	7.7	6.5	14.8	67.7

Willingness to Train					
	Completely Unwilling	Unwilling	Neutral	Willing	Completely Willing
Employed					
For a new or better job	20.0	5.6	15.9	13.3	43.7
If paid by trainee	41.5	22.2	22.4	4.5	6.8
If paid by trainee and government	12.7	15.0	33.1	22.6	12.5
If paid by government	5.5	4.5	9.0	19.7	59.8
Underemployed					
For a new or better job	12.7	2.8	16.2	12.0	55.6
If paid by trainee	38.7	17.7	23.4	5.7	12.1
If paid by trainee and government	8.1	14.5	25.8	27.4	18.6
If paid by government	1.6	2.4	5.7	14.5	74.2

Note: Rounding errors may be present.
Source: Center for Business and Economic Research, The University of Alabama.

WORKFORCE DEMAND

Industry Mix

The health care and social assistance industry was the leading employer with 80,186 jobs in the first quarter of 2020 (Table 4.8). Rounding out the top five industries by employment are retail trade, accommodation and food services, educational services, and manufacturing. These five industries provided 267,998 jobs, 51.4 percent of the regional total. The average monthly wage across all industries in the region was $5,196 and only one leading employer—manufacturing—paid more than this average. New hire monthly earnings averaged $2,796, about 54 percent of the region's average monthly wage. The highest average monthly wages were for utilities at $15,946; finance and insurance at $9,881; management of companies and enterprises at $8,981; information at $6,843; wholesale trade at $6,778; and professional, scientific, and technical services with $6,492. Accommodation and food services paid the least at $1,893. At $9,577, utilities also had the highest average monthly wages for new hires, followed by mining with $6,734 and finance and insurance with $4,573. Accommodation and food services paid newly hired workers the least, $1,341.

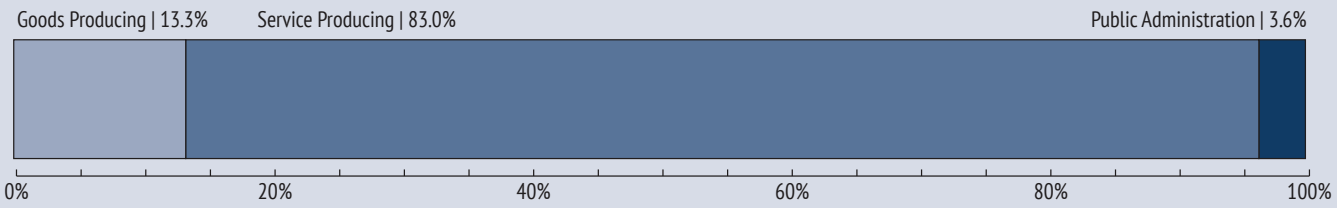
By broad industry classification, service providing industries provided 83.0 percent of jobs in first quarter 2020 (Figure 4.7). Goods producing industries were next with 13.3 percent and public administration accounted for 3.6 percent. The distribution is for all nonagricultural jobs in the region, but there is significant variation by county.

Table 4.8 Industry Mix (First Quarter 2020)

Industry by 2-digit NAICS Code	Total Employment	Share	Rank	Average Monthly Wage	Average Monthly New Hire Earnings
11 Agriculture,Forestry,Fishing and Hunting	619	0.12%	20	$4,203	$2,392
21 Mining	2,458	0.47%	19	$5,788	$6,734
22 Utilities	8,281	1.59%	16	$15,946	$9,577
23 Construction	27,800	5.33%	10	$5,331	$4,156
31-33 Manufacturing	38,638	7.4%	5	$5,408	$3,519
42 Wholesale Trade	27,984	5.4%	9	$6,778	$4,205
44-45 Retail Trade	63,939	12.3%	2	$2,975	$1,673
48-49 Transportation and Warehousing	17,504	3.4%	12	$4,473	$2,726
51 Information	8,444	1.6%	15	$6,843	$4,240
52 Finance and Insurance	37,815	7.2%	6	$9,881	$4,573
53 Real Estate and Rental and Leasing	7,829	1.5%	17	$5,680	$3,720
54 Professional,Scientific,and Technical Services	30,196	5.8%	8	$6,492	$4,280
55 Management of Companies and Enterprises	9,287	1.8%	14	$8,981	$3,698
56 Administrative and Support and Waste Management and Remediation Services	34,930	6.7%	7	$3,186	$2,286
61 Educational Services	39,466	7.6%	4	$4,154	$2,216
62 Health Care and Social Assistance	80,186	15.4%	1	$4,706	$3,098
71 Arts,Entertainment,and Recreation	6,581	1.3%	18	$2,293	$1,639
72 Accommodation and Food Services	45,769	8.8%	3	$1,893	$1,341
81 Other Services (except Public Administration)	14,984	2.9%	13	$4,171	$2,614
92 Public Administration	18,931	3.63%	11	$4,169	$2,638
ALL INDUSTRIES	**521,640**	**100.00%**		**$5,196**	**$2,796**

Note: Rounding errors may be present.
Source: Alabama Department of Labor and U.S. Census Bureau.

Figure 4.7 Central Six Employment Distribution (First Quarter 2020)



Source: Alabama Department of Labor and U.S. Census Bureau.

Job Creation and Net Job Flows

From second quarter 2001 to first quarter 2020, an average of 19,709 jobs were created per quarter (Figure 4.8), and net job flows averaged negative 83 jobs (Figure 4.8) as the impact of COVID-19 led to massive job separation in the last quarter. Both job creation and net flows dropped during the 2007 recession and afterwards net job flows rose to pre-recession levels while job creation remained low until COVID-19 recession caused both of them to drop to record lows in the first quarter of 2020. Quarterly net job flows fluctuate considerably and have ranged from a loss of 27,093 in the first quarter of 2020 to a gain of 7,417 in the second quarter of 2015. Job creation refers to the number of new jobs that are added either by new area businesses or through the expansion of existing firms. Net job flows reflect the difference between current and previous employment at all businesses.

High-Demand, Fast-Growing, High-Earning, and Sharp-Declining Occupations

Central Six AlabamaWorks has 731 single occupations. Table 4.10 shows the 40 occupations that are expected to be in high-demand, ranked by projected average annual job openings over the 2018 to 2028 period. These occupations are in most sectors of the economy ranging from manufacturing, construction, health care and social assistance, finance and insurance, to postsecondary education (Table 4.9).

The top five high-demand occupations are Combined Food Preparation and Serving Workers, Including Fast Food; Waiters and Waitresses; Laborers and Freight, Stock, and Material Movers, Hand; Janitors and Cleaners, Except Maids and Housekeeping Cleaners; and Registered Nurses. Six of the high-demand occupations are also fast-growing. This means that these six occupations have a minimum annual growth rate of 1.86 percent, much faster than the regional and state occupational growth rates of 0.45 percent and 0.48 percent, respectively.

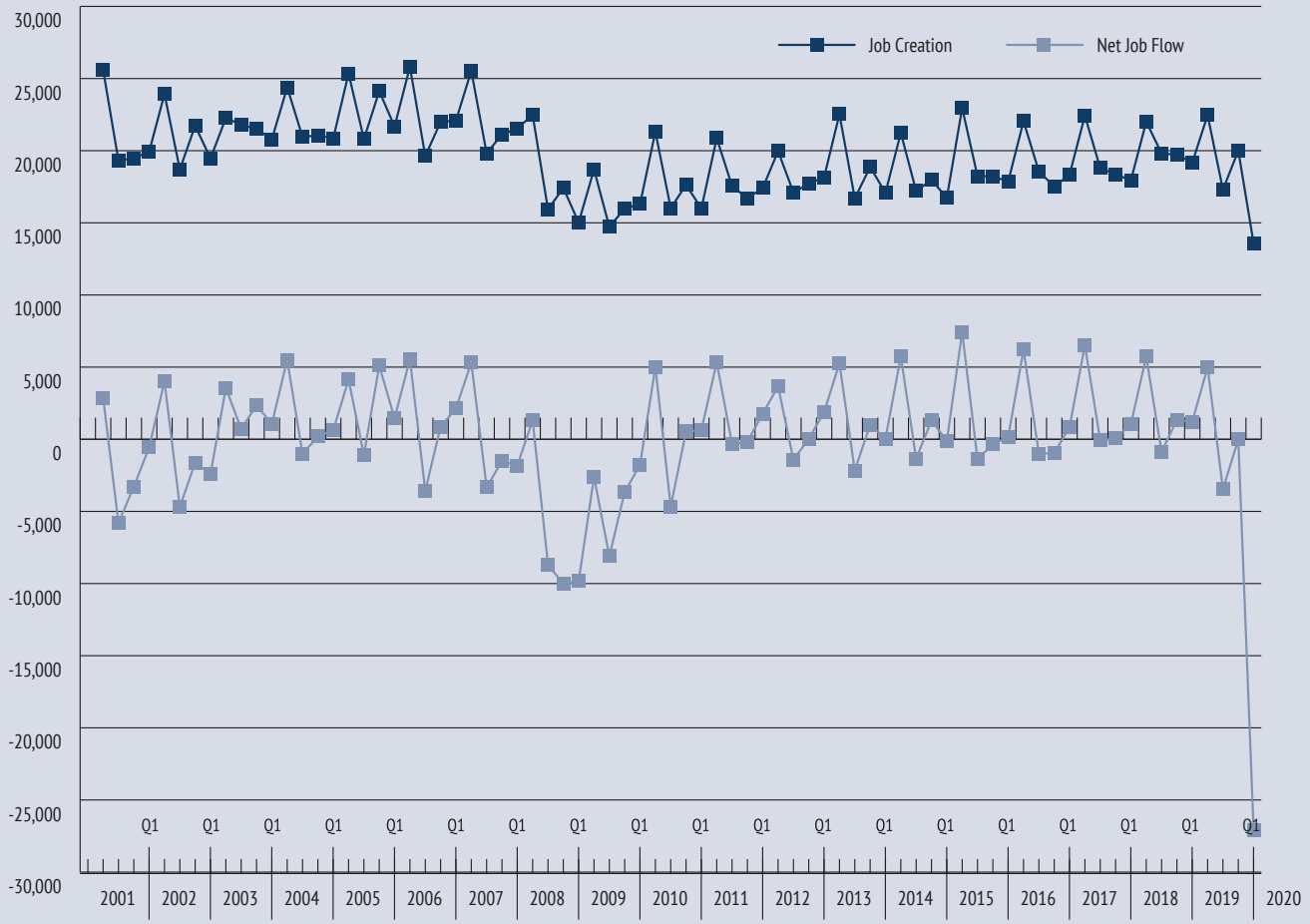
The 20 fastest growing occupations ranked by projected growth of employment are listed in Table 4.10. Most of these occupations are related to the health care and social assistance industry. The top five fast-growing occupations are Occupational Therapy Assistants; Physician Assistants; Information Security Analysts; Medical Scientists, Except Epidemiologists; and Statisticians. Three of the top five fast-growing occupations are in healthcare.

Table 4.11 shows the 50 selected highest earning occupations in the region. These occupations are mainly in health and management fields. Seven of the top 10 listed are health occupations, two are in management, and the other is in postsecondary education. The lowest average salary in the high-earning occupations is $101,652 for Insurance Sales Agents and the highest is $270,430 for Surgeons. Any discussion of earnings must consider that wages vary with experience. Occupations with the highest average wages may not necessarily have the highest entry-level wages.

The selected high-earning occupations are generally not fast-growing or in high-demand. Only one occupation—Nurse Practitioners—belongs in all the three categories (Table 4.9, Table 4.10, and Table 4.11). Six occupations are both high-demand and high-earning (Table 4.9 and Table 4.11) and two are both fast-growing and high-earning (Table 4.10 and Table 4.11).

Of the region's 731 occupations, 150 are expected to decline over the 2018 to 2028 period. Employment in the 20 sharpest-declining occupations will fall by at least three percent, with each losing a minimum of 40 jobs over the period (Table 4.12). No efforts should be made to sustain these occupations because they are declining due to structural changes in the economy of the region.

Figure 4.8 Central Six Job Creation and Net Job Flows



Source: Alabama Department of Labor and U.S. Census Bureau.

Skills and Skills Gap Analyses

Jobs require skill sets and it is necessary that jobholders have the relevant skills. Table 4.13 shows skill types and definitions as provided by O*NET Online, which offers skill sets for all occupations ranked by the degree of importance. High-earning occupations typically require skills that are obtained in the pursuit of the high educational attainment levels that such jobs require. Lower earning occupations require more basic skill sets. Some occupations have no minimum skill set requirements (e.g. dishwashers and maids).

Table 4.14 shows the percentage of selected occupations in the region that list a particular skill as primary. We define primary skills as the 10 most important skills in the required skill set for an occupation. It is important to note that a particular skill may be more important and more extensively used in one occupation than another. Table 4.14 does not address such cross-occupational skill importance comparisons. In general, basic skills are most frequently listed as primary, which means that they are important for practically all jobs.

High-earning occupations require more learning strategies, science, writing, complex problem solving, management of financial and personnel resources, management of time, negotiation, and judgment and decision making skills than both high-demand and fast-growing jobs. These skills require long training periods and postsecondary education. However, high-earning jobs require less technical, basic, and social skills in general than high-demand and fast-growing occupations. High-demand occupations require more technical, social and resource management skills than fast-growing occupations, while fast-growing jobs require more skills that fall into the basic, complex problem solving, and systems skills.

Table 4.15 shows skill gap indexes for all 35 skills

Table 4.9 Selected High-Demand Occupations (Base Year 2018 and Projected Year 2028)

Occupation	Average Annual Job Openings		
	Total	Due to Growth	Due to Separations
Combined Food Preparation and Serving Workers, Including Fast Food	3,155	225	2,935
Waiters and Waitresses	1,725	25	1,700
Laborers and Freight, Stock, and Material Movers, Hand	1,390	45	1,340
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	1,165	55	1,110
Registered Nurses	1,155	185	970
Heavy and Tractor-Trailer Truck Drivers	1,095	50	1,045
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	1,010	55	960
General and Operations Managers	**935**	**75**	**865**
Security Guards	790	20	770
Nursing Assistants	760	40	720
First-Line Supervisors of Food Preparation and Serving Workers	750	35	715
Personal Care Aides*	715	95	620
Landscaping and Groundskeeping Workers	685	45	635
Cooks, Restaurant	655	70	585
Accountants and Auditors	605	40	565
Helpers--Production Workers*	580	65	515
Light Truck or Delivery Services Drivers	570	25	550
Receptionists and Information Clerks	570	20	550
Elementary School Teachers, Except Special Education	565	25	545
Construction Laborers	460	35	425
Maintenance and Repair Workers, General	455	25	430
First-Line Supervisors of Construction Trades and Extraction Workers	450	30	420
Medical Assistants*	410	65	350
Carpenters	360	20	340
Electricians	320	25	300
Plumbers, Pipefitters, and Steamfitters	310	30	280
Insurance Sales Agents	**295**	**30**	**265**
Medical Secretaries	255	30	225
Financial Managers	**235**	**35**	**195**
Industrial Machinery Mechanics	230	20	205
Market Research Analysts and Marketing Specialists	215	30	180
Management Analysts	210	25	185
Computer User Support Specialists	205	20	180
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	190	20	165
Home Health Aides*	180	30	145
Lawyers	**155**	**20**	**135**
Health Specialties Teachers, Postsecondary	140	25	115
Software Developers, Applications*	140	30	110
Biological Science Teachers, Postsecondary	135	35	100
Nurse Practitioners*	**95**	**25**	**70**

Note: Occupations are growth- and wages weighted and data are rounded to the nearest 5. Occupations in bold are also high-earning.
* Qualify as both high-demand and fast-growing occupations.
Source: Alabama Department of Labor and Center for Business and Economic Research, The University of Alabama.

Table 4.10 Selected Fast-Growing Occupations (Base Year 2018 and Projected Year 2028)

Occupation	Employment		Percent Change	Annual Growth (Percent)
	2018	2028		
Occupational Therapy Assistants	NA	NA	41	3.50
Physician Assistants	380	520	36	3.15
Information Security Analysts	380	500	31	2.78
Medical Scientists, Except Epidemiologists	NA	NA	30	2.63
Statisticians	60	80	30	2.62
Order Clerks	240	300	28	2.52
Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic	NA	NA	27	2.44
Speech-Language Pathologists	570	720	27	2.40
Home Health Aides*	1,170	1,470	26	2.32
Physical Therapist Aides	230	280	24	2.21
Physical Therapist Assistants	540	670	24	2.18
Athletic Trainers	160	200	24	2.16
Personal Care Aides*	3,990	4,920	23	2.12
Medical Assistants*	2,830	3,480	23	2.10
Computer Hardware Engineers	**50**	**60**	**22**	**2.03**
Operations Research Analysts	110	140	22	2.02
Nurse Practitioners*	**1,180**	**1,430**	**22**	**2.00**
Cartographers and Photogrammetrists	30	40	21	1.90
Software Developers, Applications*	1,430	1,730	20	1.88
Helpers--Production Workers*	3,180	3,820	20	1.86

Note: Employment data are rounded to the nearest 10 and job openings are rounded to the nearest 5. Occupations in bold are also high-earning.
* Qualify as both high-demand and fast-growing occupations.
Source: Alabama Department of Labor and Center for Business and Economic Research, The University of Alabama.

Table 4.11 Selected High-Earning Occupations (Base Year 2018 and Projected Year 2028)

Occupation	Employment		Annual Growth (Percent)	Average Annual Job Openings	Mean Annual Salary ($)
	2018	2028			
Surgeons	300	300	0.07	10	270,430
Family and General Practitioners	270	290	0.83	10	262,342
Chief Executives	640	600	-0.66	40	237,497
Nurse Anesthetists	370	420	1.38	25	174,717
Dentists, General	350	370	0.70	15	172,680
Physicists	20	20	2.14	0	163,248
Psychiatrists	40	50	1.31	5	156,729
Economics Teachers, Postsecondary	10	10	0.00	0	152,897
Architectural and Engineering Managers	600	620	0.38	45	150,196
Pediatricians, General	130	130	0.07	5	148,450
Aerospace Engineers	NA	NA	1.07	35	148,102
Financial Managers*	2,360	2,730	1.46	235	146,358
Physicians and Surgeons, All Other	1,790	1,920	0.71	65	145,340
Personal Financial Advisors	1,130	1,200	0.68	95	136,930

Table 4.11 Selected High-Earning Occupations (Base Year 2018 and Projected Year 2028) continued

Computer and Information Systems Managers	1,210	1,340	1.06	115	135,507
Optometrists	NA	NA	0.95	5	131,593
Natural Sciences Managers	20	20	0.00	0	131,143
Lawyers*	2,710	2,920	0.74	155	129,475
General and Operations Managers*	9,550	10,300	0.75	935	127,330
Pharmacists	1,570	1,550	-0.10	70	125,816
Advertising and Promotions Managers	30	30	0.32	5	125,595
Business Teachers, Postsecondary	180	210	1.18	20	124,623
Human Resources Managers	440	460	0.49	40	124,232
Compensation and Benefits Managers	40	40	0.53	5	122,190
Marketing Managers	360	390	0.91	35	120,345
Actuaries	40	50	1.72	5	119,281
Education Administrators, Postsecondary	350	370	0.62	30	118,529
Computer and Information Research Scientists	NA	NA	0.83	10	117,408
Computer Science Teachers, Postsecondary	40	40	0.25	5	115,705
Sales Managers	950	1,000	0.50	90	115,306
Directors, Religious Activities and Education	1,570	1,650	0.45	205	113,846
Veterinarians	320	370	1.38	20	111,988
Physics Teachers, Postsecondary	20	20	0.61	0	110,892
Purchasing Managers	160	160	0.44	15	109,107
Industrial Production Managers	690	720	0.41	55	108,923
Commercial Pilots	150	170	1.29	20	108,524
Computer Hardware Engineers	**50**	**60**	**2.03**	**5**	**107,883**
Managers, All Other	2,400	2,520	0.48	200	107,681
Administrative Services Managers	310	330	0.79	30	107,637
Health Specialties Teachers, Postsecondary*	1,300	1,530	1.68	140	107,470
Power Distributors and Dispatchers	260	250	-0.12	25	105,814
Nurse Practitioners*	**1,180**	**1,430**	**2.00**	**95**	**105,702**
Funeral Service Managers	90	90	0.35	5	105,577
Training and Development Managers	50	60	0.89	5	104,954
Construction Managers	1,840	2,000	0.81	155	104,709
Sales Engineers	120	130	0.55	15	104,415
Medical and Health Services Managers	1,130	1,300	1.40	115	104,394
Engineers, All Other	130	140	0.22	10	104,062
Electrical Engineers	1,370	1,460	0.65	100	102,372
Insurance Sales Agents*	2,570	2,860	1.07	295	101,652

Note: Employment and salaries data are rounded to the nearest 10; job openings to the nearest 5. The salary data provided are based on the May 2019 release of the Occupational Employment Statistics (OES) combined employment and wage file. Estimates for specific occupations may include imputed data.
* Qualify as both high-earning and high-demand occupations. NA – Not available due to disclosure limitations.
Source: Center for Business and Economic Research, The University of Alabama and Alabama Department of Labor.

Table 4.12 Selected Sharp-Declining Occupations (Base Year 2018 and Projected Year 2028)

Occupation	Employment		Net Change	Percent Change
	2018	2028		
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	14,040	12,880	-1,160	-8.31
Cashiers	16,380	15,950	-430	-2.62
Office Clerks, General	8,810	8,420	-390	-4.51
Customer Service Representatives	12,220	11,910	-310	-2.52
Legal Secretaries	1,690	1,380	-310	-18.21
Executive Secretaries and Executive Administrative Assistants	1,560	1,280	-280	-18.07
Tellers	2,420	2,150	-270	-10.96
Bookkeeping, Accounting, and Auditing Clerks	7,370	7,130	-240	-3.31
Inspectors, Testers, Sorters, Samplers, and Weighers	1,440	1,240	-200	-13.99
Cooks, Fast Food	1,590	1,400	-190	-11.48
Computer Programmers	2,380	2,230	-150	-6.31
Telecommunications Equipment Installers and Repairers, Except Line Installers	1,150	1,000	-150	-12.54
Data Entry Keyers	620	500	-120	-20.00
Bill and Account Collectors	1,140	1,030	-110	-9.68
Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	920	820	-100	-11.04
Switchboard Operators, Including Answering Service	320	240	-80	-25.00
Structural Metal Fabricators and Fitters	480	410	-70	-14.44
Foundry Mold and Coremakers	490	430	-60	-12.63
Telemarketers	250	200	-50	-17.81
Pharmacy Aides	200	160	-40	-19.49

Note: Employment data are rounded to the nearest 10.
Source: Alabama Department of Labor and Center for Business and Economic Research, The University of Alabama.

in Table 4.14 based on 2018 to 2028 occupational projections. Skills gap indexes range from zero to 100 and are standardized measures of the gap between current supply and projected demand. The index does not provide any information about current or base year skill supply. Its focus is on the projection period and identifies critical skill needs. The index essentially ranks expected training needs. The higher the index the more critical the skill over the specified projection period.

For policy and planning purposes, skill gap indexes have to be considered together with replacement indexes, which are the expected shares of job openings due to replacement. Replacement is necessary because of turnover and people leaving the labor force. The smaller the replacement index, the larger the share of job openings due to growth, which in turn implies a need to increase the pace of skill training. Skill gap indexes demonstrate the need to ramp up the scale of skill training while replacement indexes address the pace of training.

By skill type, the skill gap indexes show that basic skills are most critical followed by social, complex problem solving, resource management, systems, and technical skills. The importance of basic skills generally and for fast growing, high-demand, and high-earning jobs indicates a strong need for training in these skills. The pace of training needs to increase for technical, basic (science), systems, and resource management skills, while the scale of training should be raised for basic and social skills.

Table 4.13 Skill Types and Definitions

Basic Skills: Developed capacities that facilitate learning or the more rapid acquisition of knowledge.

- Active Learning – Understanding the implications of new information for both current and future problem-solving and decision-making.
- Active Listening – Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
- Critical Thinking – Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions, or approaches to problems.
- Learning Strategies – Selecting and using training/instructional methods and procedures appropriate for the situation when learning or teaching new things.
- Mathematics – Using mathematics to solve problems.
- Monitoring – Monitoring / Assessing performance of yourself, other individuals, or organizations to make improvements or take corrective action.
- Reading Comprehension – Understanding written sentences and paragraphs in work-related documents.
- Science – Using scientific rules and methods to solve problems.
- Speaking – Talking to others to convey information effectively.
- Writing – Communicating effectively in writing as appropriate for the needs of the audience.

Complex Problem Solving Skills: Developed capacities used to solve novel, ill-defined problems in complex, real-world settings.

- Complex Problem Solving – Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.

Resource Management Skills: Developed capacities used to allocate resources efficiently.

- Management of Financial Resources – Determining how money will be spent to get the work done and accounting for these expenditures.
- Management of Material Resources – Obtaining and seeing to the appropriate use of equipment, facilities, and materials needed to do certain work.
- Management of Personnel Resources – Motivating, developing, and directing people as they work, identifying the best people for the job.
- Time Management – Managing one's own time and the time of others.

Social Skills: Developed capacities used to work with people to achieve goals.

- Coordination – Adjusting actions in relation to others' actions.
- Instructing – Teaching others how to do something.
- Negotiation – Bringing others together and trying to reconcile differences.
- Persuasion – Persuading others to change their minds or behavior.
- Service Orientation – Actively looking for ways to help people.
- Social Perceptiveness – Being aware of others' reactions and understanding why they react as they do.

Systems Skills: Developed capacities used to understand, monitor, and improve socio-technical systems.

- Judgment and Decision Making – Considering the relative costs and benefits of potential actions to choose the most appropriate one.
- Systems Analysis – Determining how a system should work and how changes in conditions, operations, and the environment will affect outcomes.
- Systems Evaluation – Identifying measures or indicators of system performance and the actions needed to improve or correct performance, relative to the goals of the system.

Technical Skills: Developed capacities used to design, set-up, operate, and correct malfunctions involving application of machines or technological systems.

- Equipment Maintenance – Performing routine maintenance on equipment and determining when and what kind of maintenance is needed.
- Equipment Selection – Determining the kind of tools and equipment needed to do a job.
- Installation – Installing equipment, machines, wiring, or programs to meet specifications.
- Operation and Control – Controlling operations of equipment or systems.
- Operation Monitoring – Watching gauges, dials, or other indicators to make sure a machine is working properly.
- Operations Analysis – Analyzing needs and product requirements to create a design.
- Programming – Writing computer programs for various purposes.
- Quality Control Analysis – Conducting tests and inspections of products, services, or processes to evaluate quality or performance.
- Repairing – Repairing machines or systems using the needed tools.
- Technology Design – Generating or adapting equipment and technology to serve user needs.
- Troubleshooting – Determining causes of operating errors and deciding what to do about it.

Source: O*NET Online (http://online.onetcenter.org/skills/).

Table 4.14 Percentage of Selected Occupations for Which Skill Is Primary

	Selected High-Demand Occupations	Selected Fast-Growing Occupations	Selected High-Earning Occupations
Basic Skills			
Active Learning	33	70	66
Active Listening	75	90	88
Critical Thinking	68	90	86
Learning Strategies	8	5	16
Mathematics	3	15	10
Monitoring	50	75	44
Reading Comprehension	58	85	82
Science	5	20	24
Speaking	70	90	88
Writing	35	55	58
Complex Problem Solving Skills			
Complex Problem Solving	33	55	64
Resource Management Skills			
Management of Financial Resources	0	0	2
Management of Material Resources	0	0	0
Management of Personnel Resources	5	0	20
Time Management	23	15	26
Social Skills			
Coordination	38	30	26
Instructing	20	20	20
Negotiation	10	0	24
Persuasion	10	15	14
Service Orientation	28	45	24
Social Perceptiveness	43	55	36
Systems Skills			
Judgment and Decision Making	28	70	74
Systems Analysis	5	15	4
Systems Evaluation	5	10	6
Technical Skills			
Equipment Maintenance	8	0	0
Equipment Selection	5	0	0
Installation	3	0	0
Operation and Control	15	0	6
Operation Monitoring	10	5	4
Operations Analysis	3	10	6
Programming	3	10	2
Quality Control Analysis	3	0	0
Repairing	8	0	0
Technology Design	0	0	0
Troubleshooting	10	0	0

Note: Rounding errors may be present.
Source: O*NET Online and Center for Business and Economic Research, The University of Alabama

Table 4.15 Skills Gap Indexes (Base Year 2018 and Projected Year 2028)

Skill	Skill Type	Total Openings (Projected Demand)	Skills Gap Index	Replacement Index
Active Listening	Basic	52,420	78	96
Speaking	Basic	51,825	77	96
Monitoring	Basic	45,080	67	96
Critical Thinking	Basic	41,605	62	96
Social Perceptiveness	Social	41,550	62	96
Coordination	Social	40,990	61	95
Service Orientation	Social	40,545	60	96
Reading Comprehension	Basic	37,940	57	96
Time Management	Resource	37,660	56	96
Writing	Basic	28,060	42	96
Judgment and Decision Making	Systems	27,915	42	94
Active Learning	Basic	27,235	41	94
Complex Problem Solving	Complex	23,655	35	93
Persuasion	Social	19,515	29	94
Instructing	Social	16,695	25	92
Negotiation	Social	15,710	24	95
Learning Strategies	Basic	14,875	23	92
Systems Analysis	Systems	11,265	17	93
Systems Evaluation	Systems	10,400	16	93
Mathematics	Basic	10,285	16	96
Operation Monitoring	Technical	9,795	15	96
Management of Personnel Resources	Resource	9,695	15	95
Operation and Control	Technical	9,080	14	96
Quality Control Analysis	Technical	7,235	11	97
Troubleshooting	Technical	5,440	9	96
Equipment Maintenance	Technical	3,830	6	96
Repairing	Technical	2,980	5	96
Management of Financial Resources	Resource	2,925	5	92
Operations Analysis	Technical	2,455	4	90
Management of Material Resources	Resource	2,360	4	93
Equipment Selection	Technical	1,840	3	96
Science	Basic	1,285	2	83
Installation	Technical	1,175	2	97
Programming	Technical	655	1	91
Technology Design	Technical	300	1	82

Note: These are annualized skills indexes based on 2018 to 2028 occupation projections.
Source: Center for Business and Economic Research, The University of Alabama, Alabama Department of Labor, and O*Net Online

Education and Training Issues

Educational attainment in Central Six is above that of the state as a whole. About 89 percent of residents age 25 and over had graduated from high school in 2015 to 2019, compared to 86 percent for Alabama; 31 percent have a bachelor's or higher degree versus 26 percent for the state. However, educational attainment varies greatly by county while skill and education requirements for jobs keep rising. This highlights a strong need to raise educational attainment in Blount, Chilton, St. Clair, and Walker counties, which lag behind the region and the state.

Table 4.16 shows the number of selected occupations in the region for which a particular education/training category is most common. In general, high-earning occupations require high educational attainment levels; only four of the top 50 high-earning occupations does not require a bachelors' or higher degree. Twelve (30.0 percent) of the top 40 high-demand occupations require a bachelor's or higher degree. Many of the high-demand occupations with lower educational attainment are in manufacturing, construction, and retail trade sectors. Thirteen (65.0 percent) of the top 20 fast-growing occupations require an associate degree at the minimum, with eleven (55.0 percent) requiring a bachelor's or higher degree.

The 2018 to 2028 occupational projections indicate that future jobs will require postsecondary education and training at a minimum. Current job ads are requiring more than a high school diploma or GED. Of the region's 731 occupations, 150 are expected to decline over the period so education and training for these should slow accordingly.

Table 4.16 Number of Selected Occupations by Education/Training Requirement

Most Common Education/Training Requirements Categories	Selected High-Demand Occupations	Selected Fast-Growing Occupations	Selected High-Earning Occupations
Doctoral Degree or First Professional Degree	3	1	16
Master's Degree	1	4	4
Bachelor's Degree	8	6	26
Associate Degree	0	2	1
Postsecondary Non-Degree	0	2	0
Some College, no Degree	5	1	0
High School Diploma or Equivalent	16	4	3
No Formal Educational Credential	7	0	0

Source: O*NET Online; Center for Business and Economic Research, The University of Alabama; and Alabama Department of Labor.

IMPLICATIONS AND RECOMMENDATIONS

Job growth in Central Six AlabamaWorks is expected to surpass labor force growth through the year 2040. From a 2018 base, worker shortfalls of about 43,700 and 56,000 are projected for 2028 and 2030, respectively (Table 4.17). By 2035 and 2040, worker shortfalls will reach about 69,600 and 81,300 workers. This is because job growth is expected to be faster than the growth of the main working age population. A focus on worker skills and the anticipated worker shortfalls must be a priority through 2040.

Employment is critical to economic development so strategies to address potential skill needs and worker shortfalls must be adopted and implemented. Such strategies should aim at increasing labor force participation, encouraging in-migration, and raising worker productivity. They must also include: (i) improvements in education and its funding; (ii) continuation and enhancement of programs to assess, retrain, and place dislocated workers; (iii) focusing on hard-to-serve populations (e.g. out-of-school youth); (iv) lowering the high school dropout rate; (v) offering economic opportunities that attract new and younger residents; (vi) encouragement of older worker participation in the labor force; and (vii) facilitation of in-commuting.

Improving education is vital because a highly educated and productive workforce is a critical economic development asset. The educational and training requirements of high-demand, fast-growing, and high-earning occupations show the significance of education in developing the workforce of the future. The importance of basic skills generally and for high-demand, high-growth, and high-earning jobs demonstrates a strong need for training in these skills. The pace of training needs to increase for technical, basic (science), systems, and resource management skills, while the scale of training should be raised for basic and social skills. Ideally, all high school graduates should possess basic skills so that postsecondary and higher education can focus on other and more complex skills while enhancing these basic skills. Employers should be an integral part of planning for training as they can help identify future skill needs and any existing gaps. Education and training for the 20 sharp-declining occupations in Table 4.12 should slow accordingly.

Another very important reason to improve education is that people who are more educated are more likely to work; data on worker participation and educational attainment show that labor force participation increases with worker education. Productivity also rises with education, which yields high private and social returns. Workforce development must view all of the education and other programs (e.g. adult education, career technical training, worker retraining, career readiness, etc.) as one system. Funding to support workforce development may require tax reform at state and local levels and must provide for flexibility as workforce needs change over time and demand different priorities.

Programs to assess, retrain, and place dislocated workers—especially those affected by outsourcing and structural changes in the economy—should be continued and enhanced because they can improve the labor force participation rate. Hard-to-serve populations include persons in poverty, those receiving welfare, those in sparsely populated areas, and those on active parole. These populations are often outside of the mainstream economy and are in poverty. They usually have difficulty finding work because they have low levels of educational attainment, lack occupational skills, or face geographic or other barriers. They are a potential human resource, but investment in training, transportation, child care, infrastructure, etc. may be needed to tap this resource.

In-migration is one way of growing the labor force as it helps population growth. The region's population growth rate is inadequate in meeting the expected long term

Table 4.17 Expected Worker Shortfall

	2018-2028	2018-2030	2018-2035	2018-2040
Total population growth (percent)	5.0	6.0	8.8	11.6
Age 20-64 growth (percent)	-0.1	0.1	2.5	5.0
Job growth (percent)	8.2	10.8	15.7	20.4
Worker shortfall (percent)	8.3	10.7	13.2	15.4
Worker shortfall (number)	43,696	56,044	69,575	81,263

Source: Center for Business and Economic Research, The University of Alabama.

job demands barring future economic slowdowns. Higher employment demand could be served by in-commuting. However, new residents can be attracted using the higher-paying job opportunities from the region's economic development successes. Investment in amenities and infrastructure may be needed to support such growth. In-migration is generally more beneficial than in-commuting since it grows the economy faster and adds to the tax base.

Policies that facilitate and encourage older worker participation are needed as older workers can help meet the region's workforce challenge. Such policies can be related to income taxation, job flexibility, and retirement programs. As the share of older people in the population is projected to increase, it becomes even more important that they be active in the workforce. Older worker participation has been rising nationally since the early 1990s. This has been attributed to reasons including:

- Older workers can work longer years because they are healthier
- The number of physically demanding jobs is falling
- Defined contribution plans are replacing pensions
- There are fewer employer-paid retiree health insurance programs
- Social security reforms affecting those born after 1938 which (i) gradually raised the normal retirement age from 65 to 67, (ii) increased the rate at which monthly payments rise with delayed benefits, and (iii) eliminated the reduction in benefits for those working beyond the full retirement age.

Diversifying the region's economy will strengthen it. This demands that economic development also focus on retaining, expanding, and attracting businesses that provide more high-earning jobs. Current workers—including the underemployed—would welcome higher-earning opportunities. An economic development focus on diversification would require that workforce development efforts pay attention to postsecondary and higher educational systems to ensure a ready and available workforce for new and expanding businesses. The higher incomes earned by graduates of these institutions would help raise personal income for the region and provide additional local (county and city) tax revenue. Raising personal income by improving educational attainment and technological skills is an effective economic development strategy for a region that has slightly below average population and labor force growth rates. Together, workforce development and economic development can build a strong, well-diversified economy. Indeed, we cannot achieve success without the other.

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